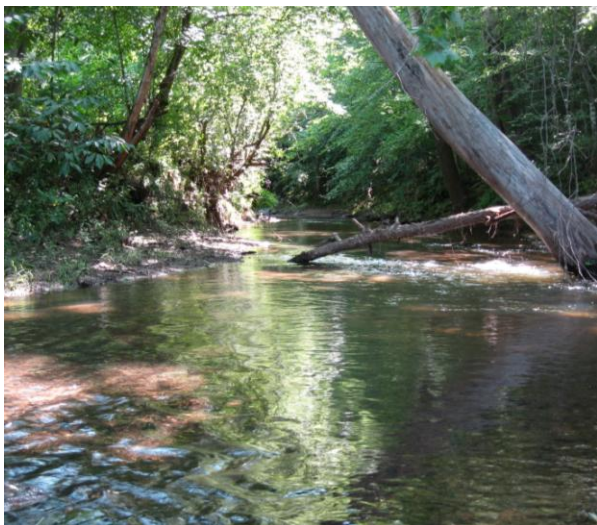




Kings Mountain National Military Park Water Quality Summary Fiscal Year 2009

Water quality at Kings Mountain National Military Park remains good



King's Creek, July 14 2009. Image by Shepard McAninch.

Highlights of Fiscal Year 2009 Monitoring

Water quality at Kings Mountain National Military Park (KIMO) during fiscal year 2009 (October 2008 through September 2009) was no different than elsewhere throughout the lower Blue Ridge and Piedmont – showing signs of a prolonged regional drought. While streams were reduced to trickles, flow-dependent parameters such as dissolved oxygen (DO) were largely unaffected. This may be a coincidence of low flows during cooler winter months when oxygen is easily dissolved in the water.

The May 26 event sampled the highest flows to date. KIMO streams responded to the nearly 6 centimeters of rain fell in the preceding week. The normally placid Stonehouse Creek discharged 300 liters per second (l/s) – nearly 100 times its low flow average. *Escherichia coli* (*E. coli*) values exceeded USEPA recommendations at Kings, Long Branch and Stonehouse Creeks in May as the streams were swollen with runoff and associated non-point bacterial sources. The *E. coli* limit was exceeded at Upper Dellingham Creek during the November 2008 round. As its watershed is rather remote, within park boundaries, and sampled during low flow conditions, it is likely that this “one time” breach was due to wildlife defecating in the stream above the sampling station.

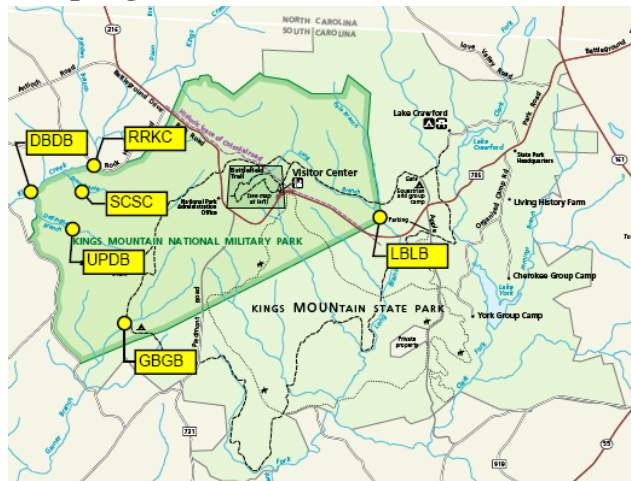
Streams of KIMO, with exception of Kings Creek, have low acid neutralizing capacity and naturally low pH. While KIMO streams typically hover near the lower pH limit of 6.0 Standard Units (SU), Stonehouse Creek reported a pH of 4.49 SU. The cause of this single outlier is unknown. It is not reflected in other samples taken that day, nor does it have precedence with other 24 samples taken at Stonehouse Creek since 2002.

Water Quality Standards

All KIMO waters are considered “South Carolina Outstanding Resource Waters” which prohibit discharge and other pollution sources, while criteria are defined as “South Carolina Fresh Water”, a combination of the highest standards under the Clean Water Act as promulgated by the state. South Carolina currently does not impose a standard for *Escherichia coli* bacteria so we have adapted the USEPA recommendations for “Single Sample Infrequently Used Full Contact Recreation.” We use the most tolerant of federal recommendations reflecting the lack of recreational use of KIMO waters, 576 MPN/100ml. Other monitored parameters, ANC and Specific Conductance (SpC), are without state standards or federal guidelines. These parameters are useful in interpreting water quality.

Water Temperature	Not to exceed 32.2°C
Dissolved Oxygen	Not to exceed 4.0 mg/l
pH	Between 6.0 and 8.5 SU
<i>Escherichia coli</i>	Not to exceed 576 MPN/100ml
SpC	No Standard
ANC	No Standard

Sampling Sites



DBDB	Dellingham Branch
UPDB	Upper Dellingham Branch
RRKC	Kings Creek
SCSC	Stonehouse Creek
GBGB	Gardner Branch
LBLB	Long Branch

Future Monitoring

Water quality sampling is scheduled to resume in fiscal year 2011.

Water quality data are available upon request to the Cumberland Piedmont Network or our website:

<http://science.nature.nps.gov/im/units/cupn/reports.cfm>